CLAIMS

1. A method for treating an implant surface intended for implantation into bone tissue c h a r a c t e r i s - e d in comprising:

providing fluorine and/or fluoride on at least a part of the implant surface, and

providing a microroughness having a root-mean-square roughness (R_q and/or S_q) of ≤ 250 nm.

2. A method for treating an implant surface intended for implantation into bone tissue c h a r a c t e r i s - e d in comprising:

providing fluorine and/or fluoride on at least a part of the implant surface, and

providing a microroughness comprising pores having a pore diameter of ≤ 1 µm and a pore depth of ≤ 500 nm.

3. A method according to claim 2, wherein the pore diameter is within the range of 50 nm to 1 µm and the pore depth is within the range of 50 to 500 nm.

4. A method according to claim 2 or claim 3, wherein a root-mean-square roughness (R_q and/or S_q) of ≤ 250 nm is provided.

5. A method according to any one of claims 1-4, wherein an average atomic concentration of at least 0.2 at% fluorine and/or fluoride is provided.

6. A method according to claim 5, wherein the average atomic concentration of fluorine and/or fluoride is within the range of 0.4-7 at%.

7. A method according to any one of claims 1-6, wherein the implant surface is a metallic implant surface.

8. A method according to claim 7, wherein the fluorine and/or fluoride and the microroughness are provided by treating the metallic implant surface with an aqueous solution of hydrofluoric acid.

9. A method according to claim 8, wherein the concentration of the hydrofluoric acid is less than 0.5 M.

10. A method according to claim 9, wherein the metallic implant surface is treated for an etching period of up to 180 sec at room temperature.

11. A method according to claim 10, wherein the concentration of the hydrofluoric acid is 0.1 M and the etching period is up to 60 sec at room temperature.

12. A method according to any one of claims 1-11, further comprising providing a macroroughness on the implant surface prior to providing the fluorine and/or fluoride and prior to providing the microroughness.

13. A method according to claim 12, wherein the macroroughness is provided by blasting the implant surface.

14. A method according to any of claims 7-13, wherein said metallic implant surface is made of commercially pure titanium or an alloy of titanium.

15. An implant for implantation into bone tissue having an implant surface at least part of which has been treated with a method according to any of claims 1-14.

16. An implant for implantation into bone tissue having an implant surface c h a r a c t e r i s e d in that at least a part of the implant surface comprises fluorine and/or fluoride, and a microroughness having a root-mean-square roughness (R_q and/or S_q) of ≤ 250 nm.

17. An implant for implantation into bone tissue having an implant surface c h a r a c t e r i s e d in that at least a part of the implant surface comprises fluorine and/or fluoride, and a microroughness which comprise pores having a pore diameter of ≤ 1 µm and a pore depth of ≤ 500 nm.

18. An implant according to claim 17, wherein the pore diameter is within the range of 50 nm to 1 µm and the pore depth is within the range of 50 to 500 nm.

19. An implant according to claim 17 or claim 18, wherein the microroughness has a root-mean-square roughness (R_q and/or S_q) of ≤ 250 nm.

20. An implant according to any one of claims 16-19, wherein the microroughness comprises peaks having a peak

width, at half the pore depth, of from 15 to 150% of the pore diameter.

21. An implant according to any one of claims 16-20, wherein at least a part of the implant surface has an average atomic concentration of at least 0.2 at% fluorine and/or fluoride.

22. An implant according to claim 21, wherein the average atomic concentration of fluorine and/or fluoride is within the range of 0.4-7 at%.

23. An implant according to any one of claims 16-22, wherein the implant surface further comprises a macroroughness.

24. An implant according to any one of claims 16-23, wherein said implant is a metallic implant.

25. An implant according to claim 24, wherein said metallic implant is made of commercially pure titanium or an alloy of titanium.

26. An implant according to any one of claims 16-25, wherein the implant is a dental implant.

27. An implant according to any one of claims 16-25, wherein the implant is an orthopaedic implant.